

AUG 29 2008

Appl. No. 10/661,793
 Amdt. dated 08/29/2008
 Response to Office action of 07/02/2008

Attorney Docket No.: TS01-1037
 N1085-90149

REMARKS/ARGUMENTS

Claims 8-17 are pending in the subject application. Claims 12-14 have been allowed and claims 8-11 and 15-17 rejected. No claim amendments are filed herein.

Applicants respectfully request re-examination, reconsideration and allowance of 5 each of pending claims 8-11 and 15-17 in addition to previously-allowed claims 12-14.

I. Allowable Subject Matter

Applicants acknowledge with appreciation, the Examiner's indication in paragraph 3 of the Office action, that claims 12-14 are allowed.

II. Rejection of Claims 8-11 and 15-17 Under 35 U.S.C. § 102(e)

10 In paragraph 2 of the Office action, claims 8-11 and 15-17 were once again rejected under 35 U.S.C. § 102(e) as being anticipated by Sahin, et al. (US Patent Publication 2003/0220708), hereinafter "Sahin." These rejections were also addressed in paragraph 4 of the subject Office action, captioned *Response to Applicants' Amendment and Arguments*. Applicants respectfully submit that these claim rejections 15 are overcome for reasons set forth below.

Claims 8-11 and 15-17 include independent claims 8, 15 and 16. Each of these claims is distinguished from Sahin, because each of the independent claims recites the feature of:

20 means for creating an opening through a layer of etch resist material;

Each of independent claims 8, 15 and 16 also recites means for assuring that this opening has a critical dimension that is within design specification/means for obtaining a critical dimension that is within design specifications. Independent claims 8, 15 and 16 each also recites the feature of:

25 said feedback mechanism communicating with said means for creating an opening through a layer of etch resist material

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to control said critical dimension measurement of said opening.

Sahin provides no feedback mechanism that communicates with the means for creating an opening through a layer of etch resist material, i.e., the lithography tool, as 5 known to one in the art, to control the CD (critical dimension) of the opening.

The Office action refers to page 12, paragraph [0166] to support the proposition that Sahin provides "*means, including a feedback mechanism (see page 12, paragraph [0166]) for assuring that the obtained critical dimension measurement of the opening created through the layer of etch resist material 708 is within design specification.*

10 Applicants respectfully point out that paragraph [0166] refers to FIGS. 14A(1) and 14A(2), each of which are directed to adjusting the etching process, and therefore NOT the photolithography tool, i.e. therefore NOT the means for assuring that the obtained CD measurement of the opening created through the layer of etch resist material 708 is within design specification. FIGS. 14A(1) and 14A(2) list the PROCESS 15 ADJUSTED as "etching within etch tool 102." The CD's produced in the layer of etch resist material is the result of a photolithographic process; not an etch process. Paragraph [0166] therefore does not supply the claimed feature of a feedback mechanism for assuring that the obtained CD of the opening is within design specification or a feedback mechanism communicating with the means for creating an 20 opening through a layer of etch resist material, i.e. the lithography tool.

Also in asserting that Sahin provides this feature, the Office action makes reference to page 16, paragraph [0210] and step 809 in FIG. 8A(1), such as was made in the previous Office action and which is addressed below.

25 In paragraph 4 of the subject Office action, in discussing the feature of the feedback mechanism communicating with the means for creating an opening through a layer of etch resist material to control the critical dimension (CD) measurement of the opening, the Office Action refers to paragraphs [0210] and [0211] and steps 807 and 810 of FIG. 8A(1) of Sahin. Sahin, in paragraph [0211], merely recites that "If the

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dimensions/profile of the patterned masking layer's feature are not within specification, . . . the modular controller 114 may direct the inventive system 100 to *rework* the wafer (step 107) as previously described." Step 107 was introduced in paragraph [0209] and the previous description referred to in paragraph [0209] is as follows: "to rework the 5 wafer if possible (step 807). For example, if the wafer has a patterned masking layer formed with photoresist, the etch tool 102 may be employed to ash the photoresist layer and the cleaning tool 104 may be employed to remove any residual photoresist as previously described. The wafer may then be reprocessed via a lithography tool (not shown)".

10 The paragraph [0209] expression of "The wafer may then be reprocessed via a lithography tool (not shown)" clearly establishes that the lithography tool is not the recipient of any feedback instructions. It is the etch tool 102 and the cleaning tool 104 that may be employed to rework the wafer and *even for these tools* - there is no communication from any feedback mechanism illustrated in FIG. 8A(1). In fact, 15 Applicants respectfully submit that a study of FIGS. 1A, 1B of Sahin, which provide an overview of the Sahin disclosure, reveal module controller 114 in communication with a multitude of tools, i.e. etch tool 102, cleaning tool 104, oxidation tool 106, deposition tool 108, and planarization tool 110, with the conspicuous absence of a lithography tool. As such, Sahin clearly does not provide a feedback mechanism or any communication 20 between the modular controller and the means for creating an opening through a layer of etch resist material, i.e. the lithography tool, as in the claimed invention. Sahin therefore cannot and does not control the CD of the opening by a feedback mechanism communicating with means for creating an opening through a layer of etch resist material. Sahin simply identifies the wafer to be reworked and provides no 25 communication, much less instructions, to a means for creating an opening through a layer of etch resist material, i.e. a photolithography tool. Applicants respectfully submit that one of ordinary skill in the art recognizes that means for creating an opening through a layer of etch resist material comprises a photolithography tool and that the ashing and cleaning tools referred to in paragraph [0209] of Sahin are clearly not means

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for creating an opening through a layer of etch resist material. Such tools merely remove the etch resist material.

Sahin merely identifies wafers that are out of specification limits, and calls for their rework. Sahin falls well short of the claimed invention as Sahin does NOT provide
5 instruction or correction to the lithography tool to assure that the CD's are in spec, i.e. it does nothing to control the CD's of the reworked wafer by providing feedback to the lithography tool. The claimed invention, in contrast, goes a step further and provides that the feedback mechanism communicates with the means for creating the opening in the layer of etch resist material to control the CD of the opening formed through the etch
10 resist material.

In summary, Sahin provides no feedback communication to the means that creates the opening in the layer of etch resist material, much less feedback communication to the means that creates the opening in the layer of etch resist material for controlling the CD's of the opening, as in the claimed invention.

15 Each of independent claims 8, 15 and 16 is therefore distinguished from Sahin for at least these reasons.

Independent claim 8 recites the further distinguishing features of:

20 said feedback mechanism communicating with said means for creating an opening through a layer of etch resist material to control said critical dimension measurement of said opening by implementing corrections in said means for creating an opening in said layer of etch resist material;

Independent claim 8 more explicitly recites features not provided by Sahin. Since Sahin does not provide a feedback mechanism that communicates with the
25 means for creating an opening through the layer of etch resist material, much less a feedback mechanism that communicates with the means for creating an opening through the layer of etch resist material to control the CD of the opening, Sahin certainly

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cannot and does not control the CD measurements of the opening formed in the resist material by implementing corrections in the photolithography tool.

On page 3, the subject Office action provides . . . by *implementing corrections* (see *step 807*) in the means for creating an opening through a layer of etch resist material. As above, step 807 labeled "Rework Wafers", is directed to cleaning the etch resist material off of the wafer and not a lithography tool. Even if a lithography tool were considered to be part of a corrective rework process, Sahin provides no suggestion of feedback communication to a lithography tool, much less feedback information to control the CD by implementing corrections in the lithography tool.

10 Independent claims 8, 15 and 16 are therefore distinguished from Sahin for at least these reasons and the rejection of these claims under 35 U.S.C. § 102(e) as being anticipated by Sahin, should be withdrawn. Claims 9-11 depend from claim 8 and claim 17 depends from claim 16, each of these claims distinguished from Sahin by virtue of their respective dependencies.

15 The rejection of claims 9-11 and 17 under this Section, should also be withdrawn.

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CONCLUSION

Based on the foregoing, each of pending claims 8-17 is in allowable form and the application in condition for allowance, which action is respectfully and expeditiously requested.

5 The Assistant Commissioner for Patents is hereby authorized to charge any fees necessary to give effect to this filing and to credit any excess payment that may be associated with this communication, to Deposit Account 04-1679.

Respectfully submitted,

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